

# A new species of the genus *Coptoglossus* Chaudoir from Australia (Insecta: Coleoptera: Carabidae: Lebiini)

Martin BAEHR

Zoologische Staatssammlung, Münchhausenstrasse. 21, D-81247 München, Germany. Email: martin.baehr@zsm.mwn.de:

Citation: Baehr, M. 2013 10 10: A new species of the genus *Coptoglossus* Chaudoir from Australia (Insecta: Coleoptera: Carabidae: Lebiini). *Memoirs of the Queensland Museum – Nature* 58: 1–6. Brisbane. ISSN 0079-8835. Accepted: 31 May 2013.

## ABSTRACT

As a supplement to the recent revision of the Australian lebiine genus *Coptoglossus* Chaudoir by the author, an additional new species, *Coptoglossus leichhardti* sp. nov., is described from Queensland, Australia, and incorporated into the most recent key to the genus. □ *Coleoptera*, *Carabidae*, *Lebiini*, *Coptoglossus*, new species, *Australia*, key to species.

During a recent visit to the Australian National Insect Collection, Canberra, I found among the extensive unidentified carabid material two specimens of an apparently undescribed species of the lebiine genus *Coptoglossus* Chaudoir, 1869 from south-eastern Queensland. Comparison with all described species of the genus corroborated this suggestion. Its description below is to be regarded as a supplement to my recent revision of the genus (Baehr 2012).

Baehr (2012) recognised the following four species in *Coptoglossus*: *C. sulcatulus* Chaudoir, 1869, *C. porphyriacus* (Sloane, 1910), *C. carteri* (Sloane, 1915), and *C. excisicollis* Baehr, 2012. Due to its rarity in collections the genus has been little documented, and its systematic position in either the Lebiini or the Platynini has been at issue (Baehr 2012). In the meantime the genus has been regarded as a basal one in the lebiine subtribe Pericalina.

## MATERIALS AND METHODS

Measurements were taken using a stereo microscope with an ocular micrometer. Length has been measured from apex of labrum to apex of elytra. Length of pronotum was measured from the most advanced part of apex

to the most advanced part of base. Width of base of pronotum was measured at the position of the posterior lateral seta. Length of elytra was measured from the most advanced part of humerus to the very apex. For comparison, measurements and ratios of the other species of *Coptoglossus* are repeated.

For dissection of the female genitalia the specimen was softened for a night in a jar under moist atmosphere, then the genitalia were removed and subsequently cleaned for a short while in hot KOH. Habitus photographs were taken with a digital camera using ProgRes CapturePro 2.6 and AutoMontage and subsequently were worked with Corel Photo Paint X4.

The holotype of the new species is in Australian National Insect Collection, Canberra (ANIC), the paratype in the working collection of the author in Zoologische Staatssammlung, München (CBM).

## SYSTEMATICS

### Genus *Coptoglossus* Chaudoir

*Coptoglossus* Chaudoir, 1869: 124. – Baehr 2012: 86. For additional references see Baehr (2012).

Type. *Coptoglossus sulcatulus* Chaudoir, 1869, by monotypy.

**Diagnosis.** A genus of the tribe (or subfamily) Lebiini (-inae), and the subtribe Pericalina, characterised by almost uniformly black, dark piceous, or slightly violaceous colour, rather depressed eyes, complete and deep elytra striae and convex intervals, barely excised apex of the elytra, and tarsal claws not denticulate. A more detailed diagnosis is in Baehr (2012).

**Distribution.** Eastern Australia from eastern Victoria to south-eastern Queensland and inland as far as the Bunya Mountains..

*Coptoglossus leichhardti* sp. nov.  
(Figs 1-3)

**Etymology.** The name is a patronym in honour of Ludwig Leichhardt, the famous German explorer of inland Queensland who started his major expedition near the Bunya Mountains. These mountains would have been in view to the north during the first weeks of his expedition in September 1844 as his party moved across the Darling Downs gathering equipment and supplies from the early settlers. Two other Australian Carabidae bear his name: *Pseudillaphanus leichhardti* Giachino 2005 and *Dystrichothorax leichardtensis* Baehr 2006.

**Material examined.** HOLOTYPE: ♀, AUSTRALIA, Qld Bunya Mt. 26.52 S - 141.40 E / 11.12.82; E-Y: AU-63 logs and bark, Endroedy-Younga (ANIC). PARATYPE: 1♀, same data as holotype (CBM).

**Diagnosis.** Distinguished from all other species, except the small *C. sulcatulus* Chaudoir which has an exceptionally wide prothorax, by lesser body size and comparatively wide basis of the rather parallel-sided, barely cordiform pronotum. Further distinguished from the most similar species *C. carteri* (Sloane) by shorter antenna.

**Description.** *Measurements.* Length: 8.2-8.4 mm; width: 3.35-3.4 mm. Ratios. Width/length of pronotum: 1.29-1.32; width of widest diameter/base of pronotum: 1.09-1.11; width of pronotum/width of head: 1.18-1.21; length/width of elytra: 1.48-1.52.

**Colour** (Fig. 1). Black, in the paratype reddish-piceous, probably due to immaturity; head in the holotype very dark piceous; pronotum and elytra with very indistinct, narrow,

reddish margin; labrum, mandibles, palpi, and antennae reddish-piceous. Legs dark brown to almost black, but knees and tarsi slightly lighter. Lower surface in middle reddish-piceous, laterally darker, almost black.

**Head** (Fig. 2). Rather elongate (in group), eye comparatively small, laterally moderately protruded, orbit rather short, oblique-convex. Clypeus comparatively elongate and trapezoidal, apical margin of labrum very slightly sinuate. Mandibles elongate. Frontal furrows short and shallow, anterior-median part of frons with a slightly triangular impression. Antennae comparatively short, surpassing the base of the pronotum by at most two antennomeres, 6<sup>th</sup> and 7<sup>th</sup> antennomeres c. 1.5 x as long as wide. Posterior supraorbital seta situated at about posterior margin of eye. Surface of head here and there with traces of extremely fine, very superficial, isodiametric microreticulation; very fine punctures but no pilosity visible, surface glossy.

**Pronotum** (Fig. 2). Fairly wide, distinctly wider than head, widest slightly in front of middle. Apex moderately excised, anterior angles slightly produced but rounded at tip; lateral margin anteriorly convex, in basal half slightly oblique and almost straight. Base in middle straight, laterally rather oblique, basal angle obtusely angulate, about 100°, laterad not produced. Apex not margined except near angles, base laterally rather coarsely margined, in middle not perceptibly margined. Lateral margin anteriorly narrow, moderately widened towards base, margin upturned, marginal channel rather deep, posteriad explanate. Disk slightly convex, median line rather deep and almost complete, anterior transverse sulcus moderately deep, posterior transverse sulcus deep. Anterior lateral seta inserted behind apical third, slightly in front of widest diameter, seta slightly removed from margin. Posterior lateral seta inserted at basal angle. Surface with many fine, shallow, more or less distinct, slightly irregular, transverse striae, with extremely fine and superficial, slightly transverse microreticulation which is difficult to recognise between the striae, and with very fine punctures and extremely short, almost



TABLE 1. Measurements and ratios of all described species of *Coptoglossus*. l, body length in mm; w/l pr, width/length of pronotum; d/b pr, width widest diameter/base of pronotum; pr/h, width pronotum/head; l/w el, length/width of elytra.

Species	No. of spms	l	w/l pr	d/b pr	pr/h	l/w el
<i>sulcatulus</i>	5	6.4-6.6	1.46-1.48	1.14-1.17	1.13-1.16	1.43-1.47
<i>porphyriacus</i>	5	9.1-10.6	1.24-1.25	1.14-1.18	1.11-1.14	1.58-1.61
<i>excisicollis</i>	5	12.4-13.9	1.14-1.18	1.28-1.35	1.25-1.30	1.42-1.43
<i>carteri</i>	6	8.9-10.6	1.28-1.30	1.13-1.20	1.23-1.28	1.47-1.51
<i>leichhardti</i>	2	8.2-8.4	1.29-1.32	1.09-1.11	1.18-1.21	1.48-1.52

erect pilosity, barely perceptible, even under very high magnification; surface fairly glossy.

**Elytra** (Fig. 3). Rather short and wide, barely widened towards apical third, dorsal surface moderately convex. Humerus widely rounded, lateral margin very slightly convex, apex oblique, barely sinuate, incurved towards suture. Lateral channel moderately wide, lateral margin slightly upturned. Striae deep, at bottom not or barely crenulate, intervals convex. Anterior discal puncture located at 3<sup>rd</sup> stria, both median and posterior punctures in middle of 3<sup>rd</sup> interval. 12-13 marginal punctures present, series widely interrupted in middle. Setae of different length but some very elongate. Microreticulation on intervals very fine and dense, markedly transverse, punctures extremely fine and barely recognisable, pilosity very short and only recognisable at very high magnification and in lateral view, slightly declined; surface moderately dull but somewhat sericeous.

**Lower surface.** Metepisternum moderately elongate, c. 1.75 x as long as wide at apex. Terminal abdominal sternum in the female quadrisetose. Microreticulation extremely fine, on thorax slightly more superficial than on abdomen, isodiametric to slightly transverse.

**Legs.** Rather elongate. 5<sup>th</sup> tarsomeres with a pair of fine setae on the lower surface. Tarsal claws large, edentate. Squamosity of male protarsus unknown.

**Male genitalia.** Unknown.

**Female gonocoxites** (Fig. 3). Gonocoxite 1 large and elongate, asetose at the apical rim; gonocoxite 2 comparatively short, curved, with acute apex; with a large, elongate dorso-median ensiform seta and two stout but elongate

ventro-lateral ensiform setae; apparently without a nematiform subapical seta although the basal pit is present.

**Variation.** Little variation noted, except for colour, but the paratype may not be fully coloured.

**Distribution.** Bunya Mountains in south-eastern Queensland.

**Collecting circumstances.** The two known specimens were collected at, or under, "logs and bark".

**Relationships.** On the basis of body shape and surface structure it is probably closest to *C. carteri* (Sloane), but in the absence of male genitalia this status has to be verified.

## REVISED KEY TO THE SPECIES OF COPTOGLOSSUS

For convenience, figure numbers from Baehr (2012) are cited as Baehr/fig x.

1. Small species, body length <7 mm; pronotum wide, ratio width/length >1.45; eye large and laterally well projected (Baehr/fig. 5); aedeagus large and stout, with triangular, symmetric apex (Baehr/fig. 10) ..... *sulcatulus* Chaudoir, 1869
- Larger species, body length >8 mm; pronotum narrower, ratio width/length <1.32 (Fig. 2; Baehr/figs 6-9); eye varied but when large and strongly projecting laterally, elytra with distinct violaceous tinge (Baehr/fig. 3); aedeagus either narrower, or with differently shaped, not triangular or asymmetric apex (Baehr/figs 11-13), or unknown. .... 2.

2. Very large species, body length >12 mm; pronotum narrow, with short but deep excision in front of basal angle, also apex deeply excised and apical angle markedly protruding (Baehr/fig. 9); elytra short and wide, perceptibly oval with dorsal surface convex (Baehr/fig. 4); aedeagus very stout and high, with somewhat lancet-shaped apex (Baehr/fig. 13); gonocoxite 2 very narrow and elongate (Baehr/fig. 17) ..... *excisicollis* Baehr, 2012
- Smaller species, body length <10.6 mm; pronotum wider, lateral margin barely excised in front of basal angle, apex less deeply excised and apical angle much less protruding (Fig. 2; Baehr/figs 6-8); either elytra short and wide but not oval-shaped, and more depressed (Fig. 1; Baehr/fig. 3), or elytra dorsally convex but much longer and narrower, and rather parallel-sided (Baehr/fig. 2); aedeagus less stout and high, with asymmetrically triangular or spoon-shaped apex (Baehr/figs 11, 12), or unknown; gonocoxite 2 short and stout (Fig. 3; Baehr/figs 15, 16) ..... 3.
3. Elytra black, short and wide and rather depressed, ratio length/width <1.52 (Fig. 1, Baehr/fig. 3); eye in both sexes moderately protruded laterally (Fig. 2; Baehr/fig. 8); aedeagus less stout, with asymmetrically triangular apex (Baehr/fig. 12), or unknown .. 4.
- Elytra distinctly violaceous, narrow and elongate, dorsally convex, ratio length/width >1.6 (Baehr/fig. 2); eye in male laterally well protruded (Baehr/fig. 6); aedeagus stouter, with wide, spoon-shaped apex (Baehr/fig. 11) ..... *porphyriacus* (Sloane, 1910)
4. Body size larger, >8.9 mm, usually larger; base of pronotum narrower as compared with widest diameter, ratio width of diameter/base >1.13, usually more; eye less protruded, orbits longer and less oblique (Baehr/fig. 8); median antennomeres almost twice as long as wide; aedeagus as in Baehr/fig. 12 ..... *carteri* (Sloane, 1915)
- Body size smaller, <8.4 mm; base of pronotum wider as compared with widest diameter, ratio width of diameter/base <1.11; eye more protruded, orbits shorter and more oblique (Fig. 2); median antennomeres 1.5 x as long as wide; aedeagus unknown. *leichhardti* sp. nov.

**Remarks.** As discussed in Baehr (2012) the genus *Coptoglossus* belongs in the lebiine subtribe Pericalina, in the sense of Lorenz (2005), although in that catalogue it was still placed in the tribe Platynini. Indeed, due to the non-denticulate tarsal claws, the not or barely excised apex of the elytra, and the appearance of the body it is understandable why the genus was included in Platynini by several previous authors. All these character states are plesiomorphic ones within the tribe Lebiini and rather similar in many genera of Platynini. The structure of the labrum and of the female gonocoxites reveal that the genus belongs in the lebiine subtribe Pericalini, but due to a number of plesiomorphic character states its position must be right at the base of this subtribe. Therefore the genus certainly belongs among the most plesiotypic lebiine genera (if plesiotypic means a short distance to the base of the phylogenetic tree of the group).

Grouping of the new species within the genus is still difficult, because the squamosity of the male protarsus is unknown. The genus divides into two groups, one, including *C. sulcatulus* and *C. porphyriacus*, possesses biserially squamose protarsi which is the plesiomorphic state, whereas *C. carteri* and *C. excisicollis* possess uniserially squamose protarsi. In view of its overall similarity to *C. carteri*, *C. leichhardti* may belong to the second group.

Specimens of *Coptoglossus* still are very rare in collections, and it is unknown why they are so rarely collected. Accordingly, little information is available about their habitat preferences and almost nothing is known about their habits and life histories. The few recorded collecting circumstances are quite different and include Malaise and intercept trapping as well as bark fogging of logs and trunks, and collecting from or under logs. But almost all recorded localities seem to be located in rain forest, either (montane) subtropical rain forest or temperate and upland *Nothofagus* rain forest. It seems, thus, that the species of this genus probably live on or under the bark of trees and logs.

The other four species of the genus all have a rather wide range which in some extends





FIG. 1. *Coptoglossus leichhardti* sp. nov. Habitus of the paratype, body length 8.4 mm.

from south-eastern Victoria to south-eastern Queensland. The ranges of most species widely overlap and at certain localities two species have been found to occur sympatrically or even syntopically. *Coptoglossus leichhardti* occurs in an area from which both *C. sulcatulus* and *C. carteri* have been recorded. How these quite similarly sized and shaped species avoid competition is unknown.



FIG. 2. *Coptoglossus leichhardti* sp. nov. Head and prothorax of the paratype.



FIG. 3. *Coptoglossus leichhardti* sp. nov. Female gonocoxite 2 of the holotype. Scale bar: 0.1 mm.

#### ACKNOWLEDGEMENTS

I am grateful to Cate Lemann and Tom Weir (ANIC Canberra) for the kind loan of the specimens. Thank you to Geoff Monteith who edited the paper in detail. I am indebted to the Deutsche Forschungsgemeinschaft (DFG) for grant BA 856/11-1 which supported the author's visit to ANIC.

#### LITERATURE CITED

- Baehr, M. 2012. The genus *Coptoglossus* Chaudoir in eastern Australia (Insecta, Coleoptera, Carabidae, Lebiinae). *Memoirs of the Queensland Museum - Nature* 56: 85-98.
- Chaudoir, M. de, 1869. Mémoire sur les Thyréoptérides. *Annales de la Société entomologique de Belgique* 12. 113-162.